Complete Summary

GUIDELINE TITLE

Adult preventive health care: cancer screening.

BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. Adult preventive health care: cancer screening. Ann Arbor (MI): University of Michigan Health System; 2004 May. 12 p. [4 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Breast Cancer
- Cervical Cancer
- Ovarian Cancer
- Colon Cancer
- Prostate Cancer

GUIDELINE CATEGORY

Prevention
Risk Assessment
Screening

CLINICAL SPECIALTY

Family Practice
Gastroenterology
Geriatrics
Internal Medicine
Obstetrics and Gynecology
Oncology
Urology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To implement an evidenced-based strategy for cancer screening in adults

TARGET POPULATION

Adults, 18 years and older

INTERVENTIONS AND PRACTICES CONSIDERED

Breast Cancer Screening

1. Mammography
2. Clinical breast examination (insufficient evidence)
3. Breast self-examination (not recommended)

Cervical Cancer Screening

1. Papanicolaou (Pap) smear
2. Liquid based cervical cytology (e.g., ThinPrep®)
3. Computerized rescreening of negative smears (Auto Pap 300) (optional adjunct to manual reading)
4. Human papilloma virus (HPV) testing as indicated

Ovarian Cancer Screening (Routine screening by any method is not recommended)

1. Pelvic examination
2. CA 125
3. Ultrasound

Colon Cancer Screening

1. Fecal occult-blood testing
2. Flexible sigmoidoscopy
3. Colonoscopy

4. Air or double-contrast barium enema (acceptable modality, but not recommended)
5. Digital rectal examination (not recommended)
6. Stool deoxyribonucleic acid (DNA) test (not recommended)
7. Virtual colonoscopy (not recommended)

Prostate Cancer Screening (Shared decision making)

1. Prostate-specific antigen (PSA)
2. Digital rectal examination

MAJOR OUTCOMES CONSIDERED

- All-cause mortality
- Disease specific mortality
- Life expectancy
- Treatment induced mortality
- Progression to metastases
- Years of life saved
- Radiation induced cancer
- Incidence of developing invasive cancers
- Predictive value of tests

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The literature searches for this project were conducted prospectively on Medline for literature published since 1/1/95. A search was performed using the major key words *adults*, *humans*, *English*, plus the terms described below for each topic. (The specific key words associated with a term are detailed in parentheses following the first time a term is used.) The searches were conducted in components each keyed to a specific causal link in a formal problem structure. The searches were supplemented with very recent clinical trials known to expert members of the panel. Negative trials were specifically sought. The searches were single cycle.

Breast cancer screening. The additional search terms (with specific key words in parentheses) were: breast cancer (breast neoplasms, mammary neoplasms, experimental mammary neoplasms, breast AND cancer), *preventive services (preventive health services, diagnostic services, mass screening, genetic screening, mass chest x-ray, multiphasic screening, neonatal screening, mobile health units, early intervention/education, health education, health fairs, patient education, prevention and control), diagnosis (sensitivity and specificity, predictive value of test, false negative reactions, false positive reactions, likelihood functions), guidelines (clinical protocols, physician´s practice patterns, algorithms, outcome and process assessment [health care], consensus*

development conferences, NIH consensus development conferences, guideline, practice guidelines), research studies (clinical trials, clinical trials – phase IV, randomized clinical trials, controlled clinical trials, multicenter studies, cohort studies).

Cervical cancer screening. The additional search terms were: *cervical cancer (cervical neoplasms, cervical intraepithelial neoplasms, cervix dysplasia)*, *preventive services*, *diagnosis*, *guidelines*, *research studies*.

Colon cancer screening. The additional search terms (with specific key words in parentheses) were: *gastrointestinal cancer (gastrointestinal neoplasms, intestinal neoplasms, stomach neoplasms)*, *preventive services*, *diagnosis*, *guidelines*, *research studies*.

Prostate cancer screening. The additional search terms were: *prostate cancer (prostatic neoplasms)*, *preventive services*, *diagnosis*, *guidelines*, *research studies*.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of evidence reflect the best available literature in support of an intervention or test:

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational trials
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Consideration of benefits, harms, costs, and patient preferences.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

Published cost analyses were reviewed for colorectal cancer (CRC) and prostate cancer.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

University of Michigan Health System (UMHS) guidelines are reviewed by faculty members of departments to which the content is most relevant. This guideline concerning cancer screening was reviewed by members of the departments of: Family Medicine; Internal Medicine's Divisions of General Medicine, Gastroenterology, and Oncology (breast oncology); Radiology (breast radiology), and Urology. Guidelines are approved by the Executive Committee for Clinical Affairs.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): The following key points summarize the content of the guideline. Refer to the original guideline document for additional information.

The levels of evidence [A–D] are defined at the end of the "Major Recommendations" field.

Breast Cancer Screening:

- Modality. Mammogram. Evidence is insufficient to recommend for or against clinical breast exam and breast self examination.
- Initiate.
    - Average risk. Recommend screening mammography for women age 40 and older. Evidence for mortality reduction is strongest for women aged 50 and older [*A*]. Evidence is weaker and absolute benefit of mammography is smaller for women age 40 to 49.

    - High risk. Women at increased risk of breast cancer (see Table 1 in the original guideline document) may benefit from earlier screening and discussion of risk reduction strategies [*D*].
- Frequency. Little evidence is available regarding frequency of screening. Most experts recommend mammography either annually or every 1 to 2 years [*D*].
- Terminate. Consider screening depending on life expectancy (even for women over 69) [*D*].

Cervical Cancer Screening:

- Modality. Papanicolaou (Pap) smear of cervical cells or liquid based cervical cytology (ThinPrep®).
- Initiate. Start within 3 years after onset of vaginal intercourse [*B*] or at age 21 for women who are not sexually active [*D*]. Women who have undergone a total hysterectomy do not require screening unless the hysterectomy was performed because of cervical cancer or its precursors [*C*].
- Frequency.
    - Low risk. Annually with conventional Pap smears or every two years using the ThinPrep until age 30. Starting at age 30, women who have had three consecutive technically satisfactory normal or negative cytology results may be screened every two to three years [*C*] (see original guideline document for details).
    - High risk. Screen annually [*D*].
- Terminate. Screening may be discontinued in women past age 65 (as recommended by the United States Preventive Services Task Force) or age 70 (as recommended by the American Cancer Society and the National Comprehensive Cancer Network) who have at least three normal or negative smears in the past 10 years and no previous history of cervical abnormality [*C*].

Colon Cancer Screening:

- Modality. Recommended methods include: fecal occult-blood testing (FOBT), flexible sigmoidoscopy (FS), or colonoscopy. (Digital rectal exam is not effective in screening for colorectal cancer.)
- Initiate. For average risk, asymptomatic patients, screening should begin at age 50.
- Frequency.
    - Average risk. FOBT: annually [*A*]. FS: every 5 years [*A*]. FOBT/FS: annually/every 5 years [*B*]. Colonoscopy: every 10 years [*B*]. Air or double-contrast barium enema (acceptable modality, but not recommended): every 5 years [*B*]. The frequency of screening has not been adequately evaluated in clinical trials.
    - High risk. Patients at increased risk of colorectal cancer should undergo more aggressive screening; details of screening vary based upon the nature of the increased risk.
- Terminate. No definite age cutoff exists for discontinuing screening.

Prostate Cancer Screening:

- Modality. Prostate-specific antigen (PSA) and digital rectal examination. Both have specificity limitations.

- Initiate. Clinicians who screen for prostate cancer should share decision making with patients [*A*], giving objective information about the potential risks and benefits of screening.
    - Average risk. For men >age 50, consider initiating PSA screen.
    - High-risk. For men with positive family history and for African Americans, consider starting PSA screening at age 40 [*D*].
- Frequency. Annually
- Terminate. Stop when life expectancy is less than 10 to 15 years [*C*].

Definitions:

Levels of Evidence

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational trials
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

Conclusions were based on prospective randomized clinical trials (RCTs) if available, to the exclusion of other data; if RCTs were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Early detection and treatment may avert future cancer-related illness.

Subgroups Most Likely to Benefit

Breast Cancer Screening

- Evidence for mortality reduction is strongest for women aged 50 and older.
- Women with a personal history of breast cancer are at increased risk for a second primary breast cancer.
- Additional risk factors include a family history of breast cancer in a mother and/or sister, proliferative benign breast disease, particularly atypical

hyperplasia, radiologically dense breasts, early age at menarche or late menopause, nulliparity and first child after age 30.
- Women who received chest irradiation for conditions such as Hodgkin's disease at age 30 or younger are at particularly high risk for breast cancer.
- Alterations in BRCA1 and BRCA2 genes make women substantially more susceptible to breast cancer than women with wildtype genotypes.

Cervical Cancer Screening

- Women with an intact cervix and either a history of cervical cancer, *in utero* exposure to diethylstilbestrol (DES), or who are immunocompromised (including human immunodeficiency virus [HIV] +) should continue cervical cancer screening for as long as they are in reasonably good health and do not have a life-limiting chronic condition.

Colon Cancer Screening

- First-degree relative affected with colorectal cancer or adenomatous polyp at age $\geq$60 years, or 2 second-degree relatives affected with colorectal cancer
- Two or more first-degree relatives with colon cancer, or a single first-degree relative with colon cancer or adenomatous polyps diagnosed at an age <60 years
- Gene carrier or at risk for familial adenomatous polyposis
- Gene carrier or at risk for Hereditary Non-Polyposis Colorectal Cancer (HNPCC)
- History of adenomatous polyps, for example:
  - 1 or 2 small (<1 cm) tubular adenomas
  - Advanced or multiple adenomas ($\geq$ 3)
- Long standing inflammatory bowel disease

Prostate Cancer Screening

- First-degree relatives of men with prostate cancer and African-American men have been shown to have a higher lifetime risk for developing prostate cancer.
- Earlier (starting at age 40) testing may be indicated although benefits have not been shown for these groups.

POTENTIAL HARMS

- Breast cancer: radiation-induced breast cancer
- Prostate cancer: treatment induced sexual dysfunction, incontinence, and mortality

CONTRAINDICATIONS

CONTRAINDICATIONS

- For all preventive screening: comorbidities that limit life expectancy
- For breast cancer screening: bilateral mastectomy

- For cervical cancer screening: women who have never engaged in sexual intercourse, women who have undergone a total hysterectomy (with removal of the cervix)
- For prostate cancer screening: prostatectomy

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific clinical procedure or treatment must be made by the physician in light of the circumstances presented by the patient.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Patient Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. Adult preventive health care: cancer screening. Ann Arbor (MI): University of Michigan Health System; 2004 May. 12 p. [4 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 May

GUIDELINE DEVELOPER(S)

University of Michigan Health System - Academic Institution

SOURCE(S) OF FUNDING

University of Michigan Health System

GUIDELINE COMMITTEE

Adult Preventive Guideline Team

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Team Members: Connie J. Standiford, MD, General Medicine; Steven J. Bernstein, MD, General Medicine; Sandeep Vijan, MD, General Medicine; Mack T. Ruffin, MD, Family Medicine; R. Van Harrison, PhD, Medical Education

Consultants: Daniel F. Hayes, MD, Breast Oncology; Mark A. Helvie, MD, Breast Radiology; James E. Montie, MD, Urology; R. Kevin Reynolds, MD, Obstetrics and Gynecology; Philip S. Schoenfeld, MD, Gastroenterology

Guidelines Oversight Team: Connie J. Standiford, MD; Lee A. Green, MD, MPH; R. Van Harrison, PhD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The University of Michigan Health System endorses the Guidelines of the Association of American Medical Colleges and the Standards of the Accreditation Council for Continuing Medical Education that the individuals who present educational activities disclose significant relationships with commercial companies whose products or services are discussed. Disclosure of a relationship is not intended to suggest bias in the information presented, but is made to provide readers with information that might be of potential importance to their evaluation of the information.

Team Member/Consultant; Relationship; Company

Steven J Bernstein, MD (none)
R Van Harrison, PhD (none)
Daniel F Hayes, MD (none)
Mark A Helvie, MD (none)
James E Montie, MD (none)
R Kevin Reynolds, MD (none)

Mack T Ruffin, MD (none)
Philip S Schoenfeld, MD (none)
Connie J Standiford, MD (none)
Sandeep Vijan, MD (none)

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available for download in Portable Document Format (PDF) from the University of Michigan Health System Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

The following are available:

- Colon or rectal cancer information. University of Michigan Health System; 2003. Various p.

Electronic copies: Available from the University of Michigan Health System Web site.

- Breast cancer information: detection. University of Michigan Health System. Various p.

Electronic copies: Available from the University of Michigan Health System Web site.

- What is a pap smear? Patient education handout. University of Michigan Health System; 2004 Apr. Various p.

Electronic copies: Available from the University of Michigan Health System Web site.

- Prostate specific antigen screening. University of Michigan Health System. Various p.

Electronic copies: Available from the University of Michigan Health System Web site.

- Routine health care for women. Patient education handout. University of Michigan Health System; 2004 Apr. Various p.

Electronic copies: Available from the University of Michigan Health System Web site.

- Routine health care for men. Patient education handout. University of Michigan Health System; 2004 Apr. Various p.

Electronic copies: Available from the University of Michigan Health System Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on October 12, 2004. The information was verified by the guideline developer on October 22, 2004.

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